

Both (6.)

A SKETCH

OF THE

THEORY AND CURE

OF

PHTHISIS.

(TUBERCULOUS CONSUMPTION.)

BY DR. CARL BOTH.

BOSTON:  
A. WILLIAMS AND COMPANY,  
100, WASHINGTON STREET.  
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## P R E F A C E.

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THIS sketch of “tuberculous consumption” (and the same of “cholera infantum”) was originally intended to serve as an illustration to an unpublished work of mine. As I was unable to finish it as quickly as I expected, I send this little pamphlet ahead of it, partly because I hope it will be of benefit to a great many sufferers; principally to cut a little path for the other more important and more scientific work.

I am always asked whether I was an “old school” or “new school” doctor, meaning allopathic or homœopathic practitioner. People in this country do not seem to know that medical science has nothing in any way to do with these schools. Medical science has only existed a few years, and is yet in its earliest childhood; medical belief and medical science are two entirely different things. Allopathy and homœopathy belong on the shelf of historical curiosities of medicine, and have not the least relation to medical science. The followers of either system of belief are not scientific physicians, but medical practitioners; those cases excepted, perhaps, where a man has to come down to such practice in order to earn his daily bread. Homœopathy has the historical merit that it first left off the confusing names of diseases which have neither sense nor basis, and began to act only symptomatically against diseases;—being at the same time harmless in its errors, it is always preferable to the confused and perfectly baseless allopathic schools.

Medical science consists in the understanding of normal anatomy, normal physiology, normal chemistry, and of pathological anatomy, pathological physiology, and pathological chemistry. By comparing the normal with the pathological phenomena we receive the correct understanding of any disar-

rangement in question ; we can analyze the process, its cause or causes and its consequences, the cure and the means; for this does not lie in the prescriptions or medicines or doctrines, but in the understanding of the process in question. Everybody can cure a disease after understanding this.

The established pathology and therapeutics are, therefore, erroneous and unscientific; they are based entirely on tradition and belief, and stand in direct contradiction with the results of medical science. Pneumonia is f. i. a *disease*, with such and such *symptoms*, and has such and such *remedies* as curatives. Medical science shows us that an inflammation of the lungs can base its cause in the most different occurrences, and must have therefore a different treatment in each case, according to the circumstances. Sometimes we have a fibrinous exudation, then again an albuminous one, then one with blood-cells, then one with blood-water and salts only. The different formula of the blood, the different circumstances, condition always a different disease, and, consequently, must condition a different treatment, and we can therefore not establish pneumonia as such or such disease with such and such treatment; but we have to make a scientific diagnosis in each and every case again. After that we can adopt means for treatment. What is disease ? What are its causes ? These are the questions which must be answered before a man can call himself a scientific physician. Do physicians know these ? Have they learned it in their medical lectures ? Very few, indeed, would be able to answer these questions. Yet in the answer of these lies the fate of medical science, and it is therefore the object of all scientific medical men to establish the understanding of these questions. Such is also my object; and the little work spoken of contains the explanation of disease, its causes, the treatment of such causes, and their consequences in general. There is no use in mending and filing on the old rotten pathology and therapeutics, for the whole building is foul, and the more pieces set in, the more confused it becomes.

From this view, I wish to have the following theory and treatment criticised. In the same manner I look upon all dis-

eases, and this is to my knowledge the only way in which we can succeed in producing scientific medical practice, and leave behind us the useless argumenting and fighting about systems, dogmas, and remedies, which altogether have no basis nor common sense in or around them.

BOSTON, MARCH, 1864.

## INTRODUCTORY.

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CIVILIZATION seems to condition certain diseases which are unknown to wild living nations. The worst and most common one of these is consumption. How long the disease has existed at all we do not know, but our statistics show that it is increasing every century. It manifests itself principally in the lungs, and destroys these through formation of tubercles, softening and ulceration. What tubercles are has not been fully established so far. Even the opinions about their seat has not been fully decided. *Cruveilhier* thinks they begin in the capillary ends of the veins; *Rokitansky*, between the parenchima of the lung vesicles; *Hasse*, on the surface of the vesicles. *Virchow* and *Foerster* have also found the beginning in the lung vesicles; and I believe there is no need of any doubt about this fact.

About the matter itself, the tuberculous exudation, the opinions are the same, namely: it is conditioned in a peculiar formation of a certain principle in the blood, which becomes excreted on certain parts of our body, and which forms these tubercles. What it consists in, or by what it is directly caused, nobody knows. Cannstadt (*Spec. Path. and Ther.*, Vol. III., Part 1, p. 826) says, "If we lend the anatomical facts a more general expression, and say that a peculiar, albuminous, to softening inclined plasma (which only through the alimentary or through an irritation process (?)) can become excreted in the lungs) becomes exudized in the interstitial parenchima and in the lung cells, or that a product of stasis in the lung, through imperfect nutrition, changes into tuberculous matter; that further, through the as foreign body acting tubercles will be produced stasis, ulceration in the surroundings, and at last destruction of tissue; so lies in this much hypothesis;

but which has the valor to produce questions, which give the further development a certain direction, by which the true and the wrong itself becomes posted in a clearer light." This gives pretty nearly all that is known about tuberculous matter.

As to the causes of tuberculosis, there are so many opinions that it is impossible to name them all here. All authors agree that there is a certain disposition to this disease. Most all agree that it is hereditary. Some find the cause of it in the air, some in the climate, some in the water, some in several agents together. However, nothing is positively known about its cause. Certain diseases give cause for it, such as measles, scarletina, pneumonia, typhus, and others. Some attention was given in this country lately to a pamphlet of Dr. Churchill, of Paris. He originated the disease from the want of phosphorus in the blood. But his theory is forgotten already, because it is not the *cause* but only a *symptom*. Dr. H. I. Bowditch, of Boston, finds the cause for it in New England in a residence on or near a damp soil to a great extent, and calls this one of the primal causes of consumption, giving many facts proving this statement. I do not believe that consumption in Massachusetts has other causes than elsewhere. It is a fact that people of mountainous regions hardly know what consumption is. But if the dry air had anything to do with this, so must consumption be very prevalent in the marsh lands of Holland, Friesland, Schleswig, Holstein, and similar countries, where every estate is surrounded and cut through by ditches of standing water; yet there is no consumption at all. The truth lies in the fact that people in mountainous regions have to use their lungs to fuller extent. The people in the marsh lands use leaping poles for crossing their ditches, which uses their lungs in full; but the people of Massachusetts, living on flat soil, have no occasion to exercise their lungs to any extent. Besides this, in the middle of France and Germany, where the air is very dry, consumption is by far more prevalent than on the coasts of these countries, which fact does not speak much for the damp-soil theory, which, if I am not mistaken, was originated by a French phy-

sician. Dr. Bowditch himself wrote to me, in 1863, "No man yet has discovered the true theory of tuberculosis."

The older authors distinguished between several kinds of consumption, such as phthisis ulcerosa, pituitosa, tuberculosa, and florida. But since pathological anatomy has thrown more light into the question, those differences have found their end, and it has been lately distinguished between a chronic and acute form of phthisis. But also this can be given up; for the so-called acute form of tuberculosis is always a complication of several pathological processes. There is no doubt that many pathological processes are considered phthisis which are not; and through this mistake appear, quite often, differences in opinion.

I shall not allow much space here for the symptoms of this disease. Every book written on the subject is full of them, and it is almost impossible to exhaust this subject, for the variations are innumerable. The principal symptoms are *A*, an inclination to catarrh and bronchial affections; *B*, a sinking-in of the chest, and a so-called growing out of the collarbones and the scapula; *C*, haemoptysis in different extent; *D*, dyspnce in all stages; *E*, pains in the chest; *F*, cough; *G*, expectoration; *H*, loss of resonance of the chest; *I*, loss of flesh; *K*, fever; *L*, profuse sweats [and diarrhoea]. These symptoms are constant, and appear in all cases; they may be more or less prominent at certain times, but they are always there.

The prognosis is always bad. It is said that a fifth part of the human race die of consumption; this may be correct or not; so much is sure, that it is the most extended disease, and the most deadly one in its career. The quantity of remedies and modes of treatment are therefore unaccountable; but no pathology contains either a remedy or a mode of treatment which has had effect, so far, on this dreadful disease.

All authors agree that this disease is curable, and it is given as a sign of cure if the patients gain in weight and strength. In anatomical respects, it is of importance to know that all healed tubercles are surrounded by a ring of pigment, sometimes so much so that these parts appear perfectly black. Specimens in my hand show this plainly.

We shall now look over the different modes of treatment recommended by the first physicians that ever wrote on this subject.

All agree that a prevention of this disease is better than a cure, and all recommend for this purpose gymnastics of the lungs and body. Cannstadt says, "*This lung gymnastic can even heal the process of disease in its first stages; we dare not decide how far, out of this rule, there might be gained advantage.*" Many also have used venesects as preventive; others thought they could through venesects on one side, and nourishing treatment on the other, produce new and healthy blood. Names of first rank are found among the defenders of this theory.

Another treatment, of severe character, was the emetic cure; it should draw the disease from the lungs to the stomach, and increase the resorption. Many first-class authors were in favor of this theory.

To name all the recommended specifics is impossible. Those that had great fame at certain times were ammonium muriaticum, sea-salt, and bicarbonates as specific resolventiae.

From narcotic remedies is the digitalis, the most recommended one. Next to it, the opium, Prussic acid, and lactucarium.

A great remedy was once the acetate of lead. It was given as a specific, and should be able to dry up the tuberculous exudations. After that came the iodine; also, sulphur and charcoal. The asphaltum, several gummatæ and empymæumatic oils, creosote, etc. The iron and Peruvian bark, mineralic acids, and almost every kind of vegetabilic substances had their times and their admirers.

Through all centuries were used in extreme vesicantiae, moxæ, fontanellæ, and setons, to draw the diseased material out of the blood or relieve the lungs from congestion.

Great hopes were based on cod-liver oil, internally as well as externally, and it is used to great extent even now.

All kinds of theories were based on inhalations, and it was thought that through this a more direct effect could be produced on the lungs. Patients were also placed in stables, where the air was thought of benefit.

Piorry proposed to press one side of the thorax so together that the caverns would come in close contact and heal through inflammation. Carson wanted to make a hole in the chest, and compress the lung in that way through air. After it was found that all modes of treatment were unsuccessful, the theory of different climates came into fashion. Patients were sent north, to the Esquimaux, because they have no consumption. As they died there very quickly, they were sent to Italy; afterwards to Egypt and Africa, to the West Indies, in mountains, on sea-voyages; in short, everywhere, and everywhere they died. After this a radical cure has almost entirely been given up, and physicians began to treat consumption symptomatically. Patients were as much as possible prevented from exposure to cold air, and the respirator came into fashion. The throat was cauterized, and medicines given according to the symptoms.

Such is about the standing-point of medical science towards tuberculosis at present. Sending patients away is considered impracticable, because they lose their home comforts, and are exposed more abroad than at their homes to bad acting influences. Certain remedies are always in fashion; some time ago it was cod-liver oil and whiskey; then Churchill's hypophosphates of lime; then, lately, fusel oil, with or without whiskey.

When I say that all great physicians have paid more or less attention to this disease, and have exhausted their knowledge in finding a way to arrest it, and have always been unsuccessful, so, for the medical student is left but a small hope for a more successful attempt; and when physicians and medical students, in the beginning, consider such study useless, so is this quite natural. It is ten years ago that my attention became arrested on the subject, however. I saw a post-mortem examination in which the lungs were healed perfectly from tuberculous process without any medical aid. It struck me that nature should heal this disease, and science should not. The case was carefully investigated, but nothing could be found leading to any conclusion. It seemed to be perfectly accidental. I began to compare. I found that wild living animals have not the disease, while tame ones sometimes die of it. The same is the fact in mankind. I found

that people living in high mountains have not this disease. I found that peasants in the country are less liable to it than people in cities; that certain trades and employments seemed to produce it, while others seemed to prevent it. Among the first were shoemakers and sewing-girls, the principal ones; next to them, tailors and bookkeepers, scientific men and fashionable ladies. Hunting men, gymnastics, sportsmen, sailors, foot-travellers and similar persons were free from it. Among soldiers the disease is unknown. I noticed that ballet dancers and gymnastics very often die from it after giving up their business. These facts convinced me that the air had nothing to do with the origin of the disease, but chiefly the use of the lungs.

To this came the fact that we never use our lungs in full, except by great exertions; that we need the points of the lungs least, the basis of them always; that the disease begins always (pneumonia as cause excepted) in the points of the lungs and never in the lower lobes. The comparison of these four facts show that consumption can only appear then in the lungs when the regular use of them is neglected. My observation has proved this statement correct in all cases without exceptions. Every one of my readers in cities may try to inflate their lungs fully with air, and they certainly will feel that the points of their lungs enlarge to considerable more extent than they perhaps ever noticed before, and by the strange feeling in the upper part of their chest, and the power they need to fill their lungs with air, they may understand how seldom we really fill them perfectly with air. If they know at the same time that only that air which is in our lungs keeps them from sinking together, and that the sinking together produces unsafelying irregularity of circulation, and consequently inflammation and exudation, according to the laws of physiology, so may they imagine the importance of this first-mentioned in regard to the development of phthisis. I can in no way understand why this fact escaped the notice of all writers upon this subject. Every physician knows that only the air in the lungs prevents their falling together; that this air, if not renewed, must become

absorbed gradually, and that lung vesicles quickly degenerate if not constantly filled with air.

By further comparing the lungs with other organs in the body, I came to the conclusion that tuberculosis must be similar with the fatty degeneration of other organs. Fatty degeneration is the consequence of gradual obstruction of circulation, or of non-use of all other parts of the body; in the lungs this degeneration is nowhere mentioned. Should the lung not stand under the same laws as other organs? I substituted the words, "fatty degeneration" for tuberculosis, and not to make new words, I distinguished between three different kinds, according to the different formula of the blood: one showing more the prevalence of fat; the other more that of carbonates and phosphates of lime, and the third and most dangerous kind, that of albumen. I compared my theory with the laws of anatomy, physiology, and chemistry, and I could in no way find a mistake in it.

This comparison made me understand the unnecessary of the word "tuberculosis," showed me this disease being nothing peculiar in itself, and the absence of the tuberculous principle, which theory I had imbibed at the universities. What made me still more interested in the subject was the results I obtained practically. According to my calculations, I saw the tuberculous process yield in cases where the diagnosis was unquestionable. It could in no way be accidental, because I had three cases at the time, and all three showed the same effect of the treatment. Several other cases that came to me for examination, but had not confidence enough to undergo my directions, died inside of one year under the treatment of the best medical authorities of the country. Two of the above cases live to-day; one died abroad, as I believe, of consumption, afterwards. The importance of my investigations made me read a lecture on the subject in 1860, to which I invited physicians only. However, they did not seem to understand my theory, or they did not want to understand it. I have had more cases since under my hand, and I produced in all the same effect. Becoming thus more and more fortified in the correctness of my calculations, I wrote, in 1863, a letter to Dr. H. I. Bowditch stating that

I could cure tuberculosis, and offered to show this on patients given to me: I thought this the most proper and simple way to prove and introduce so important an investigation. Dr. Bowditch, however, referred me to the Suffolk Medical Society, stating that he could not see the truth of my theory and the effect of my treatment. Not being master of the English language, I found it rather difficult to explain to perfection so complicated a theory before a body of medical men among whom I am but little acquainted. However, I did the best I could, and read the following theory and treatment before the Medical Society, in February, to which I only have added the report of the autopsy of Mr. Merritt, who died since. For better understanding and general criticism, I sent the manuscript to the *Boston Medical and Surgical Journal* for publication: but it was refused because "it was not practical enough for the Journal."

I do not hesitate now to lay before the medical body, as well as the intelligent public, my theory and treatment of consumption, for sharp and fair criticism, hoping that it will prove itself correct in theory as it has so far in practice. I have given it as short and condensed as I possibly could; for I think long explanations make the whole more difficult to understand, and confuse the combination of the principal points. However, I am able to analyze every word back on the known facts of anatomy, physiology, and chemistry, and there is no doubtful hypothesis in the whole. To enter into particulars would take and fill a thick volume, which to write, my time and patience will not allow.

## T H E O R Y.

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Intending to arrive at a clear and scientific view on the state of the human body which Pathology has called "tuberculous consumption," we must drop former ideas of the understanding of this disease, principally the idea of a preexisting factor or radical, which is hidden in the body, and which makes disease an unavoidable necessity.

"If we step at the sick bed or at the dissecting table, the sources of our sensual contemplations, we see that the abnormal phenomena, which we call symptoms of disease, have no strange or abnormal character, but that the life of the patient continues under the usual laws of it, only that these laws operate under uncommon [extraordinary] conditions. Hence, the normal and pathological manifestations are subject to the same law of nature."

"If we wish to understand or find out the nature of the phenomena of disease which we have seen at the sick-bed and dissecting table, it becomes necessary to go back to the first offence which gave rise to the alteration of those conditions under which the laws of nature manifest themselves. If we know this offence and the nature of its effect upon the conditions, then we know also the disease. Disease is, therefore, as shown in the preceding, that state of the body in which the physiological and chemical laws manifest themselves under abnormal conditions. This shows it to be nothing opposed to life, but rather a part of it; not an opposition to health, which itself is not a conception of deep meaning, but the name of that state of the body which allows a free use of its powers, and may very well exist with disease at the same time."

"The object of pathology is, therefore an entirely different one. While it formerly existed in the study of the several established groups of diseases, characterized through symptoms and altered functions of the body, and the knowledge of those remedies found by experience effective against such diseases and symptoms; so is our object to-day to find out the first cause of the changed conditions, directly or indirectly, by means of physical examinations, then to develop the necessary consequences of such cause on the whole organic life of the patient, according to the laws of anatomy, physiology, and chemistry, and thus make our diagnosis. The object of our therapeutics is

not the use of those remedies which are recommended by professors, systems, books, or periodicals, but, first, to remove the cause of the disease; second, to remove the consequences of this cause; and third, to prevent the patient from further exposure to such cause. What means we have to use will depend entirely upon the nature of such cause and the understanding of its effects."\*

If we look upon tuberculosis, independent of already existing opinions, we see that this disease generally first manifests itself on the lungs; sometimes, however, more seldom, in the digestive apparatus. We may likewise observe an irregularity in both at the same time. In regard to the beginning of this process we divide therefore, between two causing points:

1. A mechanical one, which would originate principally in the lungs, and,

2. A chemical one, which originates through a wrong assimilation of blood material, and affect, therefore, first, such tissues which take an important part in the blood fabrication, and, second, the lungs and other organs. Both causing points may coöperate at the same time; but this would not overthrow our classification; even experience and observation would not interfere with it. The question, "Can tuberculosis, or the tuberculous process, originate in the lungs?" can in no way be denied: we shall look, therefore, over the possibilities under which this process can begin.

The first condition for an acute or chronic inflammation is an obstruction in the capillary circulation. This obstruction can be conditioned in the chemical formula of the blood, or it must be a mechanical one. The reason for this mechanical obstruction in the lungs we have to find in the air vesicles, and it could be produced through either too much pressure or too little; each would have the same effect on the capillaries. The formation of tubercles, most always beginning in the points of the lungs, has therefore been contributed to the pressure of the clavicles by many authors. The lungs elevate themselves by every inspiration, and sink again by expiration in the thorax. But this theory is easily contradicted by the fact that people who use their lungs most would therefore, being

\* From an unpublished work of the author.

more exposed to this pressure, have tubercles the least : while those who do not use their lungs to great extent, have them oftener. We have, therefore, to find the cause in something else.

The whole system of circulation is regulated by pressure ; wherever this pressure ceases or lessens we observe an enlargement of vessels, and consequently must see stagnation. While this pressure in the greatest part of the body is sustained by muscles and atmospherical pressure together, so is, in the lungs, the circulation regulated by atmospherical pressure entirely. *The regulation of the capillary circulation in the lung vesicles entirely depends, therefore, upon the pressure of the air in them.* It is now a fact that we need the points of the lungs for respiration only on great exertions, yet we are obliged to keep the air vesicles filled with air, to counteract the atmospherical pressure on the thorax. To sustain this, we are obliged to take a deep breath very often, though we do not exercise much. This obligation is, however, often neglected or only half-way fulfilled. (Non-use of the nerves makes these less sensitive.) What must be the consequence ? The oxygen in the neglected lung vesicles will quickly become absorbed ; but according to the laws of resorption, also, the nitrogen and the formed carbonic gas must become absorbed through external atmospherical pressure on the thorax. If not renewed in time, the vesicle must lose its tension and begin to sink together. The capillaries must begin to enlarge through the pressure of the blood-pump. An accumulation of blood-globules (principally lymph corpuscles) is the next consequence, which gradually increases to complete stagnation in these small vessels. This causes an inflammation of the vesicle in question, and an effusion of plastic lymph is the next consequence. This lymph is different, according to the formula of the blood and conditions : therefore a different chemical analysis of tubercles. Regular formations of new cells, and probably also new capillaries, form themselves in this plastic exudation, and tubercles appear, therefore, in the beginning as new formations. But soon ceases the connection of this formation with the normal blood, through interception of the enlarged capillaries from the normal ones, and the nutri-

tion is stopped. We find, therefore, cells in tubercles which are not fully developed (Virchow). According to the chemical contents of the lymph and the quickness of the process, the isolated formation changes into fat metamorphosis, or it calcinates or decays. Such are the tubercles as we find them by post-mortem examinations. If several such isolated places come in contact, they are, by decay of their own structure, capable of uniting and thus forming a cavern which is isolated from the other lung tissue. Wherever an occasion is given for an enlargement of capillaries, the same process repeats, according to circumstances.

Thus, and not otherwise, must begin the formation of tubercles in the lungs; this process must also be a similar one for the formation of them in other places, although the cause for the capillary obstructions may be a different one. That certain conditions of the blood increase the process quicker than others, is sure; but just as sure is it that a neglect of the use of the lungs would gradually influence the chemical formula of the blood; and that tubercles can originate in the lungs without any derangement of other parts of the body, that it is so in most of cases, nobody, I believe, doubts.

There seems, likewise, no doubt that tubercles can originate, however very seldom, in the mucous membrane of the intestines; an organ where the pressure on the capillaries is very changeable and depending upon circumstances. Tubercles appear sometimes, also, in lymphatic glands, while on other parts of the body there is no sign of any. These are generally the glands of the neck, and they can very well become destroyed by tubercles, through ulceration, and heal, consequently, without infecting any others. In the brain, testicles, etc., tubercles are never primary (except in the brain of very small children, where the pressure of the brain is not yet regulated), and appear in very progressed stages only. As we therefore know to-day very little of the chemical processes, and just as little about the mechanical processes in glands, so do I think that we have no right to call tuberculosis in the beginning a blood disease; which name does not mean anything in particular; and everything could, scientifically, be made a blood disease.

What I mean to say is, principally, that for the formation of tubercles in the capillaries, a mechanical obstruction is necessary, no matter how this was produced.

The chemical formula of the blood can become so changed that an obstruction of the capillary net, either on one or several places, can follow. If so, the want of oxygen is always the direct cause of such irregularity (poisoning excepted), or, in other words, it depends upon a wrong proportion between food and consumption. The whole process of organic exchange of matter is an oxydation process ; and if this oxydation does not take place perfectly formed substances, incorrect and strange to the organism are the result ; such as Leucin [ $C\ 12\ H\ 13\ O\ 4N$ ] ; Tyrosin [ $C\ 18\ H\ 11\ N\ 06$ ] ; Uric acid [ $C\ 10\ H\ 4\ O\ 6\ N\ 4$ ] ; Butyric acid [ $C\ 8\ H\ 8\ O\ 4$ ] ; Ammonium and others, which are retained in the blood. The chemical change of fibrine and albumen is not quick enough, and these substances can become changed in their aggregate conditions. The principal effect of want of oxygen is an increase of the lymph corpuscles and a decrease of the red ones. These lymph corpuscles have a great deal less tendency to move than the red ones. They hang on to the walls of the capillaries, and are very well capable, therefore, to obstruct them. If their quantity is abnormally enlarged they do this in considerable extent, and, of course, there the most where the least pressure on capillaries takes place.

The chemical analysis of tubercles does not show anything extraordinary to the body, and is not always alike ; we find the same substances which belong to a normal blood, only their aggregate conditions are changed, which is, of course, nothing strange or extraordinary.

The microscope shows the debris of cells and nuclei, sometimes half-formed, or better, in their development arrested cells, fat, crystals of several salts, pus corpuscles, etc. ; all things which are natural for processes as described before.

We say, therefore, that tuberculosis is in no way a disease which consists in anything peculiar to itself, but that it is the consequence of an assault on the chemical and physical laws of the body ; either one or both acting at the same time.

The first cause — the physical one — is based on a mal-

proportion of three powers: 1st, the pressure of the blood-pump; 2d, the atmospherical pressure on the body; and 3d, the contra-pressure in the body, consisting either in muscular power, or pressure of contents of the body. Can we regulate these three powers? Certainly we can.

The second cause is a malproportion between the material of the blood; directly the accumulation of the not properly oxydized carbon — nitrogen combinations, which cause obstruction and abnormalities in the chemical filters of the body. Can we regulate these difficulties? We certainly can, as long as the tissue of these filters itself is not already destroyed. Can we cure tuberculosis, therefore? We can, in so far, as by removing the causes, interrupt the tuberculous process, and cause a calcination of the exudation and a healing of the inflamed surrounding tissues. If, however, the process is so far advanced that the new formation of tubercles is rested, and abscesses in the digestive glands are forming by the detritus and decomposition of the exudation, so is this another pathological process of abscess formation, in consequence of tubercles, and is in no way curable.

## TREATMENT.

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To cure this disease practically, it is necessary to make a minute diagnosis of each case in question; for each case has its own history and phenomena. The ætiology of the case, compared with the direct results of percussion and auscultation and proper examination of excretions, will always give us a sure diagnosis, a complete picture of the changes which have occurred during the time, where the effects of the first cause were in action. After we have gained this in full, we have to remove, 1st, the first cause or causes; 2d, the consequences of such causes; 3d, to regulate the mechanism of the body; and 4th, to regulate the chemical exchange of the body.

The first cause consists either in business, education, extravagant habits and poverty, or it is inherited,—a consequence of imperfect nutrition during the development of the embryo.

A great deal too much weight is laid on inheritance of phthisis. We see this disease prevalent in certain families, but this is no reason to make this fact a scientific law for inheritance. We forget that children and members of families are generally exposed to the same causes and effects of mistakes against diatherics. A consumptive mother or father certainly may not produce a child of such frame as healthy ones; but a child three years old has changed almost all its maternal blood-cells, and even the embryo consumes the best material of the mother's blood. Many children die of tuberculosis who had healthy parents, and children of consumptives live perfectly well. And to trace tuberculosis of persons sixteen to twenty-five years old back to their parents is in no way scientific, but belongs rather to the spiritual imaginations of former contractors of diseases and their consequences.

The consequences of the first causes or secondary causes are, sorrows, anxiety and constant nervous excitement, bad air, want of sleep, poor food, not well-cured diseases, etc. These causes have to be removed before a cure of the disease can be thought of; but to do this does not lie in the hands of the physician generally. No physician has a remedy to make poor people wealthy, or regulate their material wants.

The direct cure has for an object the regulation of the mechanism of the body. This consists,—

1. In the extension and filling with air of all lung vesicles, through well-conducted inhalations and pressing of air into the lungs. The force and intermission of such exercises depends upon the judgment of the physician, to avoid hemorrhage or emphysema. An artificial increase of oxygen to the air can come in question here.

2. In the increase of exercise of all voluntary muscles, according to anatomy, principally those of the chest and pelvis; and,

3d. In the cultivation and increase of action of the skin, through baths and friction, according to the case.

We effect through this, 1st, a cessation of further enlargement of capillaries in the lungs: 2d, an increase of consumption of material: 3d, an increased absorption of oxygen; and, 4th, an increase of excretions of used and cast-off material.

The second part of cure consists in the administration of food according to the case, and in the introduction of such matters in the body which have a needed effect on the chemical digestion, and are wanted.

The administration of food is a piece of art on the part of the physician. It depends entirely upon the diagnosis, and can consist in vegetabilic nitrogenless, or in nitrogen-containing substances: in more animalic or more vegetabilic, in more plastic or more respiratory food; it has to be always of such character as to answer the formula of the blood, and be easy of digestion at the same time. To fulfil this purpose in practice, the physician must be an organic chemist and a cook at the same time; and I consider it a very difficult point in the treatment. It is perfectly impossible to give any general

diet, as each case has its own diet, which is conditioned through the circumstances.

The special medical treatment consists in giving such substances by the use of which, either directly or indirectly, needed material for the chemical digestion is added. This is at first, oxygen. To introduce free oxygen in the body, besides respiration, is impossible without harm ; we have, therefore, to find means to do this indirectly. Two ways are possible : we must either give such materials which deliver, by their decomposition, free oxygen, or we must give such by the digestion of which more oxygen is absorbed in the lungs. So far, I have found that to fulfil this purpose the nitrogenless, vegetabilic acids, which contain the most oxygen, answer. I use acid. uvicum ( $O\ 5\ H\ 2\ C\ 4$ ) ; acid. citricum ( $O\ 11\ C\ 12\ H\ 5$ ) ; acid. malicum ( $O\ 4\ H\ 2\ C\ 4$ ). I must notice that the artificial acids have not the effect of the natural ones. It has, however, to be considered whether the body is able to digest these acids ; if not, measures have to be taken to make the digestion possible. I am myself not yet perfectly aware how these acids become decomposed in the body. So much is sure, that by their decomposition must oxygen become free, and therefore nitrogen must become oxydized ; for they contain more oxygen than any other combination in the body (in proportion), and are nitrogenless, which combinations in the blood do not exist.\* These acids, given in the proper

\* Dr. White, of Boston, assistant in the chemical department of the faculty, thinks that this theory is wrong, because citric acid e. g. is decomposed in carbonic gas and water in the stomach. I must say the following about this : 1st. If citric acid should decompose in the stomach into carbonic gas and water, so would three times the amount of oxygen be wanted for this purpose, and where should that oxygen come from ? Citric acid is equal to  $O\ 11\ C\ 12\ H\ 5$ . Carbonic gas of  $C\ 12$  requires  $O\ 24$  to form  $CO\ 2$ , equal to carbonic gas. Water of  $H\ 5$  requires  $O\ 5$  to form  $HO$ , equal water. 2d. Carbonic gas is nowhere else formed in the body as in the lungs and the skin ; it is one of the most deadly poisons in the organism. The small quantity of carbonic gas found in the stomach is swallowed, and the living blood does, under no circumstance, contain any carbonic gas. If carbonic gas is absorbed in the intestines, it becomes immediately chemically bound to other materials. L. Meyer and others have sufficiently proved that gases can be created out of the blood, under the air-pump or through heat ; but this does not show that free carbonic gas, or oxygen, or nitrogen, is in the living blood at all, and as soon as the blood leaves its vessels it changes its aggregate conditions.

way, effect a considerable increase of ureum, uric acid, and ammonium in the urine, which shows their influence on the chemical exchange of the blood.

The absorption of oxygen becomes increased if a certain quantity of water is mixed in the air, of course to a limited degree only. It seems to me that water can become chemically bound to the air, perhaps, through the influence of sunlight. This has a decided chemical influence on the capacities of oxygen, as well as on the organic processes in general. Although this fact is known to the physiologist, science has so far not been able to state the special laws about these phenomena, and probably will not until oxygen can become decomposed in its elementary principles, and thus analyzed. The proper regulation of the air is very important in the treatment.

The next wanted material in the blood of consumptives is minerals: and the want of these is not the cause of consumption: but the formation of the tuberculous process conditions the decreased absorption and digestion of these matters. Silica, iron, phosphor, probably also potassium and sulphur, seem to be the principal ones in their [to us, at present not clearly known] organic combinations, in which they appear in the body. So much is a fact, that by giving them in the known pharmaceutical forms, *they do not become absorbed, at least not properly.* We have, therefore, to give them *while in organic exchange*, and I do this by administering such herbs, or the extracts of them, which contain these minerals in abundance. I try at the same time to imitate as nearly as I can, in these medicines, the natural secretions of the abdominal glands, and I have the satisfaction to receive very favorable results by this method. I succeed most always, even in helpless cases, in regulating the functions of the intestines to the degree possible. The reduction or increase of protein substances must be effected by the diet.

As can be clearly seen from the preceding, it is the entire object of this treatment to effect an entirely different formula of the blood. While we try to use up the old materials, we add only such new ones as condition a gradually more normal

blood. That this can be done, as long as the glandular system is not organically changed, no physician, I believe, doubts. The average of time in which this can be done I should think nine months, which time, of course, changes according to the derangements in question.

## ILLUSTRATIONS AND REMARKS.

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THAT consumption is curable at all is proved sufficiently by nature, which not seldom ceases the deadly process. I myself have seen a post-mortem examination by Virchow, where lung tubercles were calcinated and the lung perfectly healed, the man having died from another cause. From reliable medical source in New York, I know that the above fact has often been noticed among the soldiers in this war; and the change of food, together with the enormous exercise they have, makes this quite plausible. When tubercles do heal sometimes by nature, this must be done according to certain laws, and there is no reason why we should not effect artificially what nature does accidentally.

Pathological specimens in my hands show the healing process of tubercles and caverns in all stages, and make these facts unquestionable.

That the above-stated theory and treatment must be correct in its principles, I know with certainty by experience; because in every case I have attended, accordingly, I have seen the same effects, and I have arrested the tuberculous process in all without exceptions, although two have died from tuberculosis, but without my fault, as the description of these cases will show.

There is but one great difficulty—and that lies in the patients entirely—which prevents me from applying my treatment to the extent I should like to. This is, on one side, the poverty; and on the other side the inconsistency, the prejudices, and the inclination to quackery of patients. Several years ago I was consulted by many consumptive patients who were in reduced circumstances: many of whom were cura-

ble. I offered all my services\* gratis, under the promise that they would follow my prescriptions and remain under my treatment nine months. I had none of them longer than two weeks. Since then I have given up spending my time for poor people, for it is useless, and they cannot be helped except they are compelled to obey, which only can be done in hospitals. The second class are such patients who would like to follow very much, but who have not the energy to do so. The treatment is a little tedious, and is in the beginning mostly hard work. They begin, and as soon as they feel somewhat better, give it up. This fact is strange, but it is a fact; they do not realize how sick they really are, and the least feeling of recovery makes them careless and forgetful. They want to be cured by medicines, or by some wonderful experiment, but common sense is too much for them.

To this comes their mistrust in physicians; being fooled and humbugged more than a few times, they gradually lose all confidence in medical men, for which they can hardly be blamed. The constant disappointments in their recovery makes their mental faculties often, not always, weaker; they often become melancholy and faint-hearted, and appear indifferent. To keep up the energy of such patients is very difficult, and yet this is as much a necessity as all the treatment. As much, therefore, as a prize-fighter wants a trainer that watches him and compels him to follow, so much and more is a watchful person wanted for consumptives. There is *and there can be no other cure for consumption!* The theory as well as the treatment is not based on experience or scientific speculation, but it is a mathematical calculation based on known facts; that it is difficult to carry out in practice is certainly not my fault, for I cannot change opinions, customs, and beliefs, nor poverty, superstition, and old-fogyishness. But that it is correct in practice I know with the greatest certainty, and I consider the cure of tuberculosis, in the limits said above, *unfailing*, when the patients can carry out the prescriptions, which are so simple that very often they laugh, until they begin to practice them, when they find out the difficulties.

There have died five patients whom I attended for phthisis. One, Mr. W., of Woburn, had chronic pneumonia; having

been treated for phthisis, he was so reduced when I saw him that I could not do anything for him. He died soon afterwards, and I could not make the autopsy. Another, Mr. Perkins, of Roxbury, was dying when I saw him; yet I could not refuse to let him try, as he said. I did not make an autopsy, for I did not think it of any importance. A third, Mr. P., of Roxbury, lawyer, was also already in the arms of death when I first saw him. He, however, was a gentleman of great energy, and if there had been any possibility at all he would have recovered, for I never had a more faithful patient. He died soon afterwards. The autopsy showed no sign of disease in any part of the body but the lungs; even his throat, which he thought had been badly affected, was normal, but his lungs were perfectly filled with tubercles, and in both points were empty cavities of four inches in length and two in diameter. I could not find a healthy piece of lung as large as a small cent.

The fourth was Mr. N., of West Cambridge. He came to me only by the persuasion of his friends, and had no confidence in any physician. He had been sick a long time, and lived mostly South. He was some thirty years old, weighed 137 pounds; his pulse was constantly 130, on average; had severe night-sweats and cough, and the examination showed considerable tuberculous exudation in both lungs. After eight weeks under my treatment, he felt himself well enough to go to New Orleans; on which proposition I answered him that I had no objection if he would take his coffin along with him. He gave this up then. After eleven weeks, his pulse varied from 80 to 100; he had no night-sweats at all; he weighed 141 pounds; had no fever of any kind; coughed without difficulty; felt stronger every way, and had good appetite. He then insisted upon going into the country, where he had a nice country seat. I did not wish him to go; at last, Mrs. N. promised to watch him, and he went. I saw him occasionally, and also received letters, which after a certain period did not look quite so favorable. I advised him to return, which he did not do. On the 26th of August, of the same year, I was sent for, because he had had a severe bleeding. This was against all my calculations, and I could in no way account for

it. Through repeated inquiry he then told me, that from the time he had left Boston he had given up my directions, for he said he hated to do them and it had been too hot; when I told him that I believed he could not gain again what he had lost, he returned as quick as he could to Boston, and tried hard to get better again, but it was no use, and he died in October of the same year. Autopsy was not permitted. If I had not consented to let him go, I am confident that he would be alive to-day.

An unquestionable proof of the effect of my treatment is the case of N. P. Merritt, Esq.,\* who died this month. Mr. M. came to me in January, 1861, in a most miserable condition; hardly being able to walk a short distance; he could not speak ten words without the most exhausting cough; he had severe night-sweats and no appetite at all; fever. Examination denoted tuberculosis pulmonum in high degree; I also diagnosed tubercles in the lymphatic glands of the abdomen. He had been obliged for about five years, to give up business, and had been in Mexico, New Orleans, Havana, and Nassau, for his health; had also tried all sorts of treatment. "I had just returned to die here," he said. In the summer of 1861 he made already a business journey, and in January, 1862, he started a new business in Devonshire Street, and was quite successful.

He always coughed some, though very little, but he paid no attention to it, because it did not trouble him, as he said. Giving him the advice to call on me immediately if he should notice any symptoms of returning sickness, I lost sight of him. On the 10th of February, this year, I was sent for because he had diarrhoea. I found him very much reduced and sick; he had had that diarrhoea since Thanksgiving last; instead of telling me, he had tried himself to stop it; not succeeding, he consulted Dr. Reed of this city, but the diarrhoea could not be arrested. He promised never to neglect himself again if I could get him up this time. He had in the last year neglected my directions entirely, because he had forgotten them as he said.

The second day after I attended him, he discharged in his

\* I have permission to use the full name.

stools several hundreds of tubercles, which were swimming on the surface, and were precisely of the nature as I have seen them coughed out. After that his diarrhoea ceased and his discharges became natural. But I could not recall his appetite ; he was too weak to recover, for he could not do as I wanted him to, and he died on the 3d of March, showing symptoms of exudation in the brain before death.

*Autopsy.* — Both of the lungs were on all parts of the thorax so adhered that I had to break the lung in pieces to get it out ; only on the diaphragm I succeeded in separating the pleura ; the left upper lobe was perfectly solid, and full of caverns and tuberculous degeneration, which showed a strong prevalence of fat. The caverns were all filled with a thick cream-like pus of bad odor. All caverns were without any connection with bronchi (but one in the right upper lobe), and surrounded with a capsule of hard and solid fibrinous exudation, which under no circumstances would allow any communication or escape of gas or liquids. Inside of these caverns I noticed considerable precipitation of calcareous matter (more than I had seen in other caverns) all around their walls, which show the inclination to entire calcination ; there were tubercles of the size of pigeon eggs ; but they consisted of a whole group of smaller tubercles, the structure of which I could recognize with the naked eye. There was no softness about them, but they appeared like a piece of fatty degenerated liver. On every cut, I noticed between the caverns and tubercles red and healthy-looking parts to which the air had admission, but which I should call lung tissue, with more solid structure than perfectly healthy lung. Between this healthy lung-tissue and the solid places came always first, a stratum of pigment, and then ligament-like scars to protect the healthy from the degenerated. There was not the least symptom of inflammation of any part of the left lung. The point of the under left lobe was the same, solid, and containing caverns ; the greater part of it filled with single tubercles, all of which were perfectly calcinated and surrounded by a stratum of pigment, sometimes two or three together. The left lower lobe was the best one in the chest. The two upper lobes of the right lung were exactly like the upper left one, only there had, three weeks before death, a cavern bro-

ken, and the bronchus and the lung tissue, which were capable of passing air, were somewhat inflamed on that part. The lower right one was similar to the lower left, and filled a little more with single and calcinated tubercles. There were, according to my calculations, not less than fifteen caverns in these lungs, of which the largest one measures two inches in length, and more than three-fourths in diameter, and this was not in any communication with a bronchus. There was no softening in any part of the lungs, only that one cavern had broken shortly before death, probably being near to a bronchus, and never being sufficiently surrounded by scar tissue, produced that little cough, which he sometimes had, though he was perfectly well otherwise.\* His heart was pale, but healthy; his liver pale, otherwise normal; his intestines on several places inflamed and the mesenteric glands enlarged and degenerated; nothing extraordinary from other autopsies after tuberculosis could be noticed in other parts of the body. The brain was not opened.

This case has given me the utmost satisfaction of the correctness of my calculations; in fact, I did not believe that an arrest of this deadly disease in such degree was possible. I actually can say with the greatest confidence that I took the man out of the grave again three years ago, and he would live to-day and probably many years more if he had followed my directions, or had applied earlier for my advice in his last sickness. His death was in no way caused by his degenerated lungs, but he died from the disease in his intestines, which had advanced too far to be arrested. I could give the description of other cases which I cured, but I do not wish to do so; for I cannot very well use the names of such patients, and therefore do not think it of any importance; at the same time I do not wish to make any statement for which I need to depend upon the belief of my readers. However, I will state one of recidivation now under my treatment again. It

\* On some places the lung vesicles had enlarged, in consequence of the forced treatment, to the size of a pea, and they appeared then like a bunch of grapes. These vesicles are less needed for breathing than to form air-cushions between the encapsulated caverns which prevented their contact, and thus inflammation. Nature could never show more healing power than in this process.

is the well-known artist, Mr. Lay [I am at liberty to use his name]. Mr. L. came to me for advice in the year 1858, having suffered from cough more or less for a period of years. When he came over here his cough became worse, and the treatment of several physicians proved unsuccessful. I found both points of his lungs filled with tubercles,—whether there were caverns or not I was not able to investigate. He expectorated, while under my treatment, several times tubercles and blood; very often the cheesy, structureless matter peculiar to the tuberculous process. He has been cured entirely, although it took about one year and a half before his cough ceased, and this cure was so effectual that it has been believed that he never had had consumption. However, he is sick again just now, and it does not take a great diagnostic to hear the difficulty in his lung. It is only the right side which is affected again. Mr. Lay has not lived during the last year quite so carefully as usual in regard to his former sickness, and, as in the case of Mr. Merritt, this allowed the disease to begin again. It is impossible to cure a disease of such bad tendency so that it shall never come again; but as soon as any occasion is given for the repeated influence of the primal cause the disease makes its appearance again. I state this case principally for the reason to give those medical men who make it their business to throw doubts on anything which they are unable to perform themselves, an opportunity to go and see. In the course of some months Mr. Lay will be cured again, and it will take a very sensitive and educated ear to hear anything of the present difficulty.

The scientific differences between my theory and those existing before, are, that I deny positively the existence of an individuality of this disease as such; that under no circumstances is anything hidden in the blood, conditioning this disease as such; that for the origination of this disease a mechanical obstruction of the capillary circulation, produced either directly or indirectly, is necessary; that it shows in its career no abnormalities from the laws under which other well-known diseases appear. That inheritance of it is no scientific law under any circumstances; that the infected lung is able and ready to heal (which fact is not denied by modern investigations).

And I claim and positively maintain *that this disease is curable according to the treatment mentioned*; and I am ready and willing to prove this before any scientific committee which may consider it worthy to investigate the correctness of my statement, on patients who are compelled to follow my directions.

How far an arrest of the disease is possible, I am not able at present to state with certainty; but I believe that the case of Mr. Merritt is the utmost that medical aid ever can produce.

As to general judgment, I should consider a person beyond cure if he is not able to walk a mile forth and back; however, the state of the abdominal glands is the deciding measure. I also believe a cure impossible where a large cavern is empty and the cavity is too large to be sufficiently condensed by the surrounding healthy lung tissue.

It has from several sides been hinted out to me to give the prescriptions and remedies which I use during my treatment. This I shall not do, for the following reasons: Every scientific physician ought to know which plants and vegetables contain iron, phosphor, silica, etc; a physician that has not learned so much is not at all able to carry out my treatment. I wish, if possible, to avoid any mal-use or imitation of my mode of treatment by unscientific practitioners. The greatest force of it lies in the nourishment of patients; and the prescribed food changes in every case. I have no peculiar remedies at all, but prescribe such ingredients as to my best knowledge seem necessary for the body. I have by no means any secret in my treatment, but am very willing to show it to any one who may wish to see my directions. If there is any secret about it, it lies in the understanding of pathological chemistry, physiology, and anatomy, and these can be learned at any university.

If the eye of scientific men should meet with any insufficiency or incorrectness in my statements, then must I beg excuse for the first, as in working out this theory and treatment, neither a sufficient library nor good microscope has been at my service. As to the second, I shall thankfully receive any information from any side, and give credit for it afterwards. Only the great importance of the subject has made me publish this pamphlet as it is.



